

CLAIMS

1. A security element for documents in general and particularly for banknotes, security cards and the like, comprising a flexible support layer that has, on at least one face, a layer of metallic material characterized in that said metallic layer has a substantially uniform thickness with a tolerance of less than  $\pm 4\%$ , and in that on said metallic layer at least regions are provided having a metal thickness that is less than 25% and more than 1% of the thickness of the layer of metallic material of the surrounding portions.

2. A security element for documents in general and particularly for banknotes, security cards and the like, comprising a flexible support layer that has a layer of metallic material on at least one face characterized in that said metallic layer has a uniform thickness with a tolerance of less than  $\pm 4\%$ , and in that at least regions provided with a metal thickness that is comprised between 0.45 and 0.012 optical density are provided on said metallic layer.

3. A security element for documents in general and particularly for banknotes, security cards and the like, comprising a flexible support layer that has a layer of metallic material on at least one face, characterized in that it comprises, on said metallic layer, first regions and second regions that have a lower thickness than the layer of metallic material of the surrounding portions, said first and second regions having mutually different thicknesses.

4. The security element according to one or more of the preceding claims, characterized in that said regions having a reduced thickness of metal can be detected visually.

5. The security element according to one or more of the preceding claims, characterized in that said metallic layer is made of aluminum.

6. The security element according to one or more of the preceding claims, characterized in that said metallic layer is made of chromium.

7. The security element according to one or more of the preceding claims, characterized in that said metallic layer is made of nickel.

8. The security element according to one or more of the preceding claims, characterized in that said metallic layer is made of copper.

5        9. The security element according to one or more of the preceding claims, characterized in that said metallic layer is made of a combination of aluminum, chromium, nickel and/or copper.

10       10. The security element according to one or more of the preceding claims, characterized in that said metallic layer has a thickness of less than 3 optical density.

11. The security element according to one or more of the preceding claims, characterized in that it comprises fluorescent substances with a solid background on said support layer.

15       12. The security element according to one or more of the preceding claims, characterized in that it comprises discontinuous fluorescent substances on said support layer.

13. The security element according to one or more of the preceding claims, characterized in that it comprises holographic images with a solid background on said support layer.

20       14. The security element according to one or more of the preceding claims, characterized in that it comprises discontinuous holographic images on said support layer.

25       15. The security element according to one or more of the preceding claims, characterized in that it comprises continuous magnetic substances on said support layer.

16. The security element according to one or more of the preceding claims, characterized in that it comprises, on said support layer, discontinuous magnetic substances that provide a code.

30       17. The security element according to one or more of the preceding claims, characterized in that it comprises refractive substances on said

support layer.

18. The security element according to one or more of the preceding claims, characterized in that it comprises color-changing substances on said support layer.

5        19. A method for providing a metallic layer on a security element for documents in general and particularly for banknotes, security cards and the like, characterized in that it provides for the deposition of said metallic layer by means of two series of crucibles installed in two contiguous vacuum chambers, a thickness substantially equal to half of the total thickness being  
10        deposited for each pass for each series of crucibles.

20. A method for providing a security element for documents in general and particularly for banknotes, security cards and the like, characterized in that it consists in metallizing at least one face of a support layer made of polyester; in applying, by printing, an ink for protecting said  
15        metallic layer; in demetallizing the ribbon in a tank that contains 52-54% phosphoric acid at a temperature of 46 °C +/- 0.1 °C, with a retention time of 20-25 seconds.

21. A method for providing a security element for documents in general and particularly for banknotes, security cards and the like,  
20        characterized in that it consists in metallizing a support layer made of polyester, in providing on the resulting metallic layer a print by means of an ink for protecting said metallic layer except for the first regions; in providing a first demetallization by means of an acid; in applying to at least some of said first regions a protective layer by means of a protective ink; in  
25        performing a second demetallization in order to provide second regions that have a lower thickness of metal than said first regions.

22. A document in general, characterized in that it comprises a security element according to the preceding claims, which is fully inserted therein.

30        23. A document in general according to one or more of the preceding

claims, characterized in that it comprises a security element according to the preceding claims, which is at least partially inserted therein.

24. A document in general, characterized in that it has a security element according to the preceding claims on at least one of its outer faces.